Savings from Green Buildings

Data sources: reports available on the USGBC website.

Http://www.usgbc.org

Green buildings provide a promising way to address challenges:

- High cost of electric power
- Worsening electric grid constraints, power quality & availability problems
- Pending water shortage & waste disposal issues
- Continued state and federal pressure to cut criteria pollutants

http://www.usgbc.org/Docs/Resources/CA_report_GBbenefits.pdf : "The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force", October 2003. Includes LEED building analysis.

Green buildings provide a promising way to address challenges: (continued)

- Growing concern over cost of global warming
- Rising incidence of allergies & asthma, especially in children
- Health and productivity of workers
- Effect of the physical school environment on children's ability to learn
- Increasing expenses of maintaining and operating state facilities over time

http://www.usgbc.org/Docs/Resources/CA_report_GBbenefits.pdf

Benefits of Green Buildings:

- Oct 2002 "Sustainability Matrix * Sustainability Report" by David & Lucille Packard Foundation - considered environmental goals for new 90,000 SF office building. Study found that **short term costs increased with each LEED rating level, but long-term costs decreased dramatically.**

http://www.packard.org/pdf/2002Report.pdf

Benefits of Green Buildings:

- Xenergy study for City of Portland identified **15% lifecycle savings** associated with bringing 3 standard buildings up to LEED certification levels. (with primary opportunities to save money associated with **energy efficiency**, **water efficiency**, and the **use of salvaged materials**.)

http://www.sustainablleportland.org/CityLEED.pdf

Possible Green Building Savings

	Initial Cost	30 year	Savings
Market (Design/Mgmt fees $1.3B)	$11.7B	$22.7B	
LEED Gold (Design/Mgmt fees $1.5B)	$13.7B	$18.5B	$4.2B (Gold vs. Market)
LEED Platinum (Design/Mgmt fees $1.7B)	$14.3B	$18.3B	$4.4B (Platinum vs. Market)

If Army builds 1000 new buildings ($12B)
Cumulative costs NPV at **30 years**
Data source: http://www.packard.org/pdf/2002Report.pdf

Possible Green Building Savings

	Initial Cost	60 year	Savings
Market (Design/Mgmt fees $1.3B)	$14.7B	$62.9B	
LEED Gold (Design/Mgmt fees $1.5B)	$13.7B	$27.8B	$35.1B (Gold vs. Market)
LEED Platinum (Design/Mgmt fees $1.7B)	$14.3B	$23.7B	$39.2 (Platinum vs. Market)

If Army builds 1000 new buildings ($12B)
Cumulative costs NPV at **60 years**
Data source: http://www.packard.org/pdf/2002Report.pdf

Measurable Benefits for Enhanced Daylighting, Natural Ventilation & Improved Air Quality in Buildings

- Heschong-Mahone group looked at students in 2 cities and found **students in classrooms with most daylighting performed up to 20% better** than those in classrooms with little daylight

http://www.h-m-g.com see "Daylighting in Schools: An Investigation into the Relationship Between Daylight and Human Performance." 1999.

Measurable Benefits for Enhanced Daylighting, Natural Ventilation & Improved Air Quality in Buildings

- Herman-Miller study showed **7% increase in productivity** following a move to a green, daylight facility.

http://www.edcmag.com/CDA/ArticleInformation/coverstory/BNPCoverStoryItem/0,4118,19794,00.html

Judith Heerwagen, “Do Green Buildings Enhance the Well Being of Workers?”

Measurable Benefits for Enhanced Daylighting, Natural Ventilation & Improved Air Quality in Buildings

- LBNL study found that US Businesses could **save as much as $58 Billion in lost sick time and an additional $200 Billion in worker performance** if improvements were made to indoor air quality.

http://www.energy.ca.gov/reports/2001-11-20_700-01-001.PDF
"CEC Environmental Performance Report"

Economic Analysis:

- *New!* Costing Green: Davis Langdon has conducted an in-depth study of current projects to analyze the cost of sustainable buildings. Using detailed cost estimates, the report compares 45 LEED to 93 non-LEED projects, breaking them down into 3 primary program types -- libraries, laboratories, and academic buildings. The report concludes that there is **no significant difference in the construction costs for LEED-seeking versus non-LEED buildings in any of the categories.**

  http://www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf#search='Costing%20Green:%20Davis%20Langdon

Economic Analysis

- GSA LEED Cost Study: The U.S. General Services Administration commissioned this report to estimate soft and hard costs for developing green federal facilities by modeling a new courthouse project and an office modernization project against two scenarios for each LEED-NC rating.

http://www.wbdg.org/references/ccbdoc.php?i=280

Waterless Urinals:

- Fort Huachuca's Directorate of Public Works (DPW), replaced 570 flush urinals with the no-water models and saved 23 million gallons per year. (Craig Hansen)